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Conference Abstract

Measuring Agricultural Biodiversity for Sustainable Food Systems

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Abstract

Today, global food production is the largest driver of environmental degradation and biodiversity loss (Willett et al. 2019). Rising global food demand and limited arable land are pushing us to expand agricultural frontiers and production. This often happens without regard to the environment, causing biodiversity loss, land and water degradation (Bioversity International 2017) Climate change is accelerating biodiversity loss. Higher temperatures disrupt pollination and natural pest control, affecting food quality (Food and Agriculture Organization of the UN 2017).

Equally, the need to feed an additional 2 billion people by 2050 is pushing us to increase yields in a few staple foods, which erodes food and genetic diversity. Biodiversity loss in food systems leaves farmers with fewer options to deal with risks of crop failure, declining soil fertility, or increasingly variable weather (Bioversity International 2017), causing production losses, food insecurity and malnutrition(FAO, IFAD, UNICEF, WFP WHO 2018).

The way we produce and consume our food is hurting both people and the planet. This calls upon all of us, from governments to producers to consumers, to put biodiversity back into food (World Economic Forum (WEF) 2017).

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Food and - more broadly - agricultural biodiversity are essential for sustainable food systems. Agrobiodiversity boosts productivity and nutrition quality, increases soil and water quality, and reduces the need for synthetic fertilizers. It makes farmers' livelihoods more resilient, reducing yield losses due to climate change and pest damage. Broadening the types of cultivated plants also benefits the environment, increasing the abundance of pollinators and beneficial soil organisms, and reducing the risk of pest epidemics.

To sustainably use and conserve agrobiodiversity, governments need dedicated, multi-sectoral and evidence-based policies and strategies. From smallholder farmers to multinational companies, food producers are becoming increasingly important in conserving genetic resources and adopting sustainable agricultural practices. Consumers need to become more aware of the impact of their food choices on the planet and their role in preserving the environment.

What actions do we need to put in place to make change happen? To answer, we need to be able to measure biodiversity in food systems. While decades of effort have advanced our understanding of sustainable food systems, biodiversity data remain uneven and oftentimes information is analyzed from sectoral perspectives (i.e.: production, consumption or conservation). To transform food systems, we need to look at the broader picture and understand the systemic linkages between biodiversity, food security and nutrition, agricultural production, and the environment.

Bioversity International has developed the Agrobiodiversity Index, an innovative tool that brings together existing data on diets and markets, production and genetic resources, analyzing them under the lens of agricultural biodiversity (Bioversity International 2018). Through open access to agricultural biodiversity data for science and society, the tool crosses disciplinary boundaries and allows users to monitor biodiversity trends in food systems. In particular, it helps food systems actors to measure agrobiodiversity in a selected area or value chain, and understand to what extent their commitments and actions are contributing to its sustainable use and conservation.

This user-friendly tool equips food systems actors with the data needed to make informed decisions. For example, it helps governments to formulate evidence-based agricultural, health and food policies and strategies to address today's global challenges, by providing information on how biological and geographical diversity influence food systems sustainability. Through the Index, companies can understand how to diversify their supply chain and production to reduce risks, and what are the best agricultural practices for their agro-ecological zone. The tool can thereby support best practices dissemination, and track progress towards global goals related to agrobiodiversity, including Sustainable Development Goals 3, 12, 13, 15 and Aichi targets 7.

Keywords

Agrobiodiversity Index, sustainable food systems, resilience, agricultural biodiversity, healthy diets, sustainable production, genetic resources

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